

## **Terrestrial effects of Milky Way gamma-ray bursts: atmospheric, climatic, and biogeochemical impact**

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A gamma-ray burst within our own galaxy could cause major damage to the Earth's biosphere. Rate estimates suggest that at least one GRB has occurred within a dangerous range (about 2 kpc) in the last billion years. The gamma radiation from such a burst would quickly deplete much of the Earth's protective ozone layer, allowing an increase in solar UVB radiation reaching the surface. This radiation is harmful to life, causing sunburn and damaging DNA. In addition, NO<sub>2</sub> produced in the atmosphere would cause a decrease in visible sunlight reaching the surface and could cause global cooling. Nitric acid rain could stress portions of the biosphere, but the increased nitrate deposition could be helpful to land plants. I will discuss results of modeling such effects.

